

Listing of Claims

1. (Previously presented) A modular wide-range microwave communications unit comprising:
 - a precalibrated IF module having IF circuitry and an IF module memory operative for storing calibration values for the IF circuitry; and
 - at least one precalibrated RF module having RF circuitry and an RF module memory operative for storing calibration values for the RF circuitry, the RF circuitry including RF transmit circuitry and wherein the RF module memory includes an RF transmit module memory, the RF transmit circuitry including an attenuator, an IF detector and an RF detector, and with said RF module memory storing transmit calibration values for the attenuator and the IF and RF detectors.
2. (Canceled)
3. (Previously Presented) The modular wide-range microwave communications unit of claim 1, wherein the at least one precalibrated RF module includes an RF receive module with the RF circuitry therein including RF receive circuitry and wherein the RF module memory includes an RF receive module memory operative for storing calibration values for the RF receive circuitry.
4. (Previously presented) The modular wide-range microwave communications unit of claim 1, wherein the IF transmit circuitry further includes additional IF transmit attenuators, IF receive circuitry with a plurality of IF receive attenuators, and a processor adapted to control the IF transmit circuitry based on transmit calibration values for such circuitry stored in the IF module memory and to control the IF receive circuitry based on calibration values for such circuitry stored in the IF module memory.

5. (Previously presented) The modular wide-range microwave communications unit of claim 1, further comprising a radio processing unit which includes the precalibrated IF module, the at least one precalibrated RF module, and a signal processing unit with a modem that is operatively coupled to the radio processing unit.

6. (Canceled)

7. (Previously presented) A modular wide-range microwave communications unit comprising a plurality of precalibrated modules at least one of which being a precalibrated RF module, having an RF transmit module with RF circuitry including RF transmit circuitry and a module memory including an RF transmit module memory operative for storing calibration values for the RF transmit circuitry, the RF transmit circuitry including a transmit attenuator, an IF detector and an RF detector.

8. (Canceled)

9. (Previously presented) The modular wide-range microwave communications unit of claim 7 wherein the transmit calibration values stored in the RF transmit module memory include calibration values for the attenuator and the IF and RF detectors.

10. (Previously presented) The modular wide-range microwave communications unit of claim 7, wherein in the plurality of precalibrated modules includes an RF receive module in which the RF circuitry includes RF receive circuitry and wherein the module memory in the precalibrated RF module includes an RF receive module memory operative for storing receive calibration values for the RF receive circuitry.

11. (Previously presented) The modular wide-range microwave communications unit of claim 10, wherein the RF receive circuitry comprises a receive attenuator and wherein the calibration values stored in the RF receive module memory include calibration values for the receive attenuator.

12. (Previously presented) The modular wide-range microwave communications unit of claim 7, wherein the plurality of precalibrated modules further includes a precalibrated IF module comprising IF transmit circuitry, IF receive circuitry and a processor and an IF module memory with the processor being operably configured to control the IF transmit circuitry and receive instructions for controlling the IF receive circuitry based on IF transmit calibration values and IF receive calibration values stored in the IF module memory.

13. (Previously presented) The modular wide-range microwave communications unit of claim 7, the precalibrated RF module includes an RF receive module having RF receive circuitry and an RF receive module memory operative for storing calibration values for the RF receive circuitry portion.

14. (Previously presented) The modular wide-range microwave communications unit of claim 7, wherein the plurality of precalibrated modules further includes a precalibrated IF module that includes IF transmit circuitry with a first digital attenuator operatively coupled to a first analog attenuator, a first mixer operatively coupled to the first analog attenuator, a second analog attenuator coupled to the first mixer, a second digital attenuator coupled to the second analog attenuator, and a transmit IF AGC coupled between the first digital and first analog attenuators, and wherein the module memory in the precalibrated IF module is operative to store calibration values for the attenuators of the IF transmit circuitry.

15. (Previously presented) The modular wide-range microwave communications unit of claim 7, wherein the plurality of precalibrated modules further includes a precalibrated IF module that includes IF receive circuitry with a receive RSSI detector, a plurality of receive attenuators, a mixer, a further attenuator and a receive AGC detector operatively coupled in a manner where the receive RSSI detector is operatively coupled to the plurality of receive attenuators, the plurality of receive attenuators are operatively coupled to the mixer, the mixer is operatively coupled to the further attenuator, and the further attenuator is operatively coupled to the receive AGC detector, and wherein the module memory in the precalibrated IF module is operative to store calibration values for the plurality of receive attenuators and further attenuator of the IF receive circuitry .

16. (Previously presented) The modular wide-range microwave communications unit of claim 10, further comprising:

- a radio processing unit which includes the plurality of precalibrated modules one of which being a precalibrated IF module and another being the precalibrated RF module; and
- a signal processing unit having a modem and operatively coupled to the radio processing unit.

17 - 28. (Canceled)

29. (Previously presented) The modular wide-range microwave communications system of claim 13, wherein the plurality of precalibrated modules further include a precalibrated IF module having:

- transmit IF circuitry,
- receive IF circuitry,
- an IF module memory for storing IF calibration values for the transmit and receive IF circuitry, and
- a processor operably configured to execute instructions including transmit instructions for controlling the transmit IF circuitry and circuitry of the RF transmit circuitry portion based on the IF calibration values and calibration values for the RF transmit circuitry portion and receive instructions for controlling the receive IF circuitry and circuitry of the RF receive circuitry

portion based on the IF calibration values.

30. (Canceled)

31. (Canceled)

32. (Withdrawn) A modular wide-range wireless communications unit, comprising:
an IF/radio processing card (IF/RPC) module including precalibrated IF transmit circuitry, precalibrated IF receive circuitry, a telemetry circuit, a memory for holding calibration values associated with the IF transmit and receive circuitries, a processor adapted to control respective configuration and operations of the IF receive and transmit circuitries based on their associated calibration values and based on control signaling received via the telemetry circuit;
a transmitter module operatively coupled to the IF/PRC module from which it receives IF transmit signals, the transmit module including precalibrated RF transmit circuitry for converting IF to RF transmit signals;
a transmit memory for holding calibration values associated with the transmitter module;
a receiver module operatively coupled to the IF/RPC module to which it sends IF receive signals, the receiver module including precalibrated RF receive circuitry for converting RF to IF receive signals;
a receive memory for holding calibration values associated with the receiver module; and
an antenna coupling module operatively interfaced with the transmitter and receive modules.

33. (Withdrawn) The modular wide-range wireless communications unit of claim 32, further comprising a power amplifier module interposed between the antenna coupling module and the transmitter module.

34. (Withdrawn) The modular wide-range wireless communications unit of claim 32, further comprising a synthesizer module operatively coupled to the IF/RPC module.

35. (Withdrawn) The modular wide-range wireless communications unit of claim 32, wherein the transmitter module includes a monolithic microwave transmitter IC.

36. (Withdrawn) The modular wide-range wireless communications unit of claim 32, wherein the receiver module includes a monolithic microwave receiver IC.

37. (Withdrawn) The modular wide-range wireless communications unit of claim 32, wherein, together, the IF/RPC and transmitter module form a transmit path and, together, the receiver module and IF/RPC form a receive path, and wherein the control signaling received via the telemetry circuit includes commands from a remote signal processor unit to adjust frequency and modulation settings within transmit and receive paths, respectively.

38. (Withdrawn) The modular wide-range wireless communications unit of claim 32, wherein the memory of the IF/RPC module and the transmit memory include calibration tables for the calibration values including transmit power attenuation values.

39. (Withdrawn) The modular wide-range wireless communications unit of claim 38, wherein the transmit power attenuation values correlate to modulation settings and temperature values.

40. (Withdrawn) The modular wide-range wireless communications unit of claim 38, wherein each of the IF and RF transmit circuitries includes one or more attenuators controllable by the transmit power attenuation values.

41. (Withdrawn) The modular wide-range wireless communications unit of claim 32, wherein each of the IF and RF receive circuitries includes one or more attenuators activation and control of which is controllable by the calibration values contained in the memory of the IF/RPC and receive memory.

42. (Previously presented) A modular wide-range microwave communications unit comprising:

a precalibrated RF module having RF transmit module with RF circuitry including RF transmit circuitry and a module memory including an RF transmit module memory operative for storing calibration values for the RF transmit circuitry, the RF transmit circuitry including a transmit attenuator, an IF detector and an RF detector, said precalibrated RF module also including an RF receive module in which the RF circuitry includes RF receive circuitry and wherein the module memory in the precalibrated RF module includes an RF receive module memory operative for storing receive calibration values for the RF receive circuitry; and

a precalibrated IF module comprising IF transmit circuitry, IF receive circuitry and a processor and an IF module memory, with the processor being operably configured to control the IF transmit circuitry and receive instructions for controlling the IF receive circuitry based on IF transmit calibration values and IF receive calibration values stored in the IF module memory.

43. (Previously presented) The modular wide-range microwave communications unit of claim 42 wherein the transmit calibration values stored in the RF transmit module memory include calibration values for the attenuator and the IF and RF detectors.

44. (Previously presented) The modular wide-range microwave communications unit of claim 42 wherein the RF receive circuitry comprises a receive attenuator and wherein the calibration values stored in the RF receive module memory include calibration values for the receive attenuator.

45. (Previously presented) The modular wide-range microwave communications unit of claim 42 wherein the IF transmit circuitry further includes a first digital attenuator operatively coupled to a first analog attenuator, a first mixer operatively coupled to the first analog attenuator, a second analog attenuator coupled to the first mixer, a second digital attenuator coupled to the second analog attenuator, and a transmit IF AGC coupled between the first digital and first analog attenuators, and wherein the module memory in the precalibrated IF module is operative to store calibration values for the attenuators of the IF transmit circuitry.

46. (Previously presented) The modular wide-range microwave communications unit of claim 42 wherein the IF receive circuitry further includes a receive RSSI detector, a plurality of receive attenuators, a mixer, a further attenuator and a receive AGC detector operatively coupled in a manner where the receive RSSI detector is operatively coupled to the plurality of receive attenuators, the plurality of receive attenuators are operatively coupled to the mixer, the mixer is operatively coupled to the further attenuator, and the further attenuator is operatively coupled to the receive AGC detector, and wherein the module memory in the precalibrated IF module is operative to store calibration values for the plurality of receive attenuators and further attenuator of the IF receive circuitry.